SETAC Europe: Prague Czechoslovakia, April 2004

Western Airborne Contaminants Assessment Project (WACAP): Assessing Deposition and Impacts of Persistent Organic Pollutants and Metals in Seven National Parks in the Western United States

Dixon H. Landers, Staci L. Simonich, Donald H. Campbell, Marilyn M. Erway
Linda H. Geiser, Daniel A. Jaffe, Michael L. Kent, Carl B. Schreck, Tamara F. Blett,
Howard E. Taylor

Abstract:
Airborne contaminants, especially those that biomagnify in the food chain, can pose serious health threats to wildlife and humans. Biological effects of airborne contaminants include impacts on reproductive success, growth, behavior, disease, and survival. In response to concern over airborne contaminants, the United States National Park Service (NPS) initiated the "Western Airborne Contaminants Assessment Project" (WACAP) in 2002. The objectives of the five-year project are to determine 1) if contaminants are present in western national parks and if so, to determine where contaminants are accumulating (geographically and by elevation); 2) which contaminants pose a potential ecological threat; 3) which indicators appear to be the most useful to address contamination; and 4) which sources are contributing to the contaminant load in national parks. Two lake catchments were selected at each of the following western parks: Sequoia, Rocky Mountain, Mount Rainier, Olympic, Glacier, Denali, and Gates of the Arctic/Noatak. Selected catchments range in elevation from 400 to 3000 m, in latitude from 37 to 68 degrees, and in longitude from 106 to 160 degrees. Six ecosystem components are being examined. Snow is used to measure atmospheric loading; fish are used to measure food web impacts and bioaccumulation; lake water is used to assess watershed health in terms of physical and chemical water quality indicators; lake sediments provide historic trends (~150 years) of contaminant loading; lichen indicate food web impacts and metals bioaccumulation; willow bark indicates ecosystem exposure; and moose meat is used to determine if contaminants are impacting food sources used by native people. Snow is sampled annually at each site; all other ecosystem components are sampled once during the project at each site. Willow bark is sampled along elevational transects in all parks. Semi-volatile organic compounds (including current- and historic-use pesticides, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons) as well as metals (including mercury, cadmium, and lead) are measured in all ecosystem components.

Characters = 1818
Max. Characters = 1800